



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/727,425	11/30/2000	Mathew S. Read	029419.0015.UTL	4391

7590 04/19/2002  
ANATOLY WEISER  
BROBECK, PHLEGER & HARRISON LLP  
12390 EL CAMINO REAL  
SAN DIEGO, CA 92130

EXAMINER

THAI, LUAN C

ART UNIT PAPER NUMBER

2827

DATE MAILED: 04/19/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/727,425

Applicant(s)

READ ET AL.

Examiner

Luan Thai

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 11-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restriction***

1. Applicant's election of Group I, claims 1-10 in Paper No. 4 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

### ***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the features of "a flip-chip die" as recited in claim 4 and "a plurality of flip-chip connections" as recited in claim 9 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

### ***Claim Objections***

3. Claim 3 is objected to because of the following informalities: in claim 3, line 2, the limitation "said at least one integrated circuit package" should be changed to –said at least one integrated circuit–. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the

Art Unit: 2827

art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claim 5 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification, as originally filed, does not disclose that the preload extension tabs are directly connected to the mold cap, as recited in claim 5. Instead, the specification, page 8, lines 13-15, states that during the molding process, the preload extension tabs 6, 8, 10, 12, and 14 make contact with the top 34 of the mold cavity 18, etc.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 5 and 6-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 5, the expression "the preload extension tabs are directly connected to the mold cap" is unclear as to how the preload extension tabs can be directly connected to the mold cap which is comprises a plastic resin material, as defined by applicant.

In claim 6, the limitation of " the integrated circuit package" has no antecedent basis.

In claim 9, the limitation of " said at least one integrated circuit package" has no antecedent basis.

Claims 7-10 are rejected since each includes the limitations of claim 6.

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

9. Claims 1-6 are rejected under 35 U.S.C. 102(e) as being anticipated by Mizuno et al. (6,084,310).

The figures and reference numbers referred to in this office action are used merely to indicate an example of a specific teaching and are not to be taken as limiting.

Regarding claims 1-6, Mizuno et al. disclose (specifically see figures 7A-7B) a micro-leadframe package comprising a flat base 912 having conductive lead pattern 912; an integrated circuit 92, inherently comprised a semiconductor die therein, positioned on the conductive lead pattern 912 and connected to the conductive lead pattern by solder balls 93 (also known as flip-chip connections); a plurality of preload extension tabs 911 protruded at an angle with respect to the flat base 912 into the integrated circuit package to a predetermined height above the flat base; a mold cap 94 having a predetermined height above the flat base, wherein the preload extension tabs 911 are directly connected to the flat base 912.

Art Unit: 2827

10. Claims 1- 6, are rejected under 35 U.S.C. 102(b) as being anticipated by Song et al. (5,770,888).

The figures and reference numbers referred to in this office action are used merely to indicate an example of a specific teaching and are not to be taken as limiting.

Regarding claims 1-6, Song et al. disclose (specifically see figure 4) a lead-frame package comprising a flat base having conductive lead patterns 22a; an integrated circuit 21, inherently comprised a semiconductor die therein, positioned on the conductive lead patterns 22a and connected to the conductive lead patterns by solder balls 25 (also known as flip-chip connectors); a plurality of preload extension tabs 22 arranged about the conductive lead patterns 22a, wherein the tabs protrude at an angle with respect to the flat base into the integrated circuit package to a predetermined height above the flat base; a mold cap 16 having a predetermined height above the flat base, wherein the preload extension tabs 22-24 are directly connected to the conductive lead pattern 22a the flat base.

### ***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2827

12. Claims 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mizuno et al. (6,084,310) in view of Glenn (6,143,981).

The figures and reference numbers referred to in this office action are used merely to indicate an example of a specific teaching and are not to be taken as limiting.

Regarding claims 7-10, Mizuno et al. disclose all the limitations of the claimed invention as detailed above including the mold cap 94 to form the package, as detailed above, but Mizuno et al. do not teach the mold cap 94 comprising plastic. However, plastic is a well known material in semiconductor art for forming a device package as taught by Glenn (Col. 1, lines 11-12, 19-23, 25-26, and 57+). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use plastic to form the plastic mold cap for Mizuno et al.'s device package since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

13. Claims 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Song et al. (5,770,888) in view of Glenn (6,143,981).

The figures and reference numbers referred to in this office action are used merely to indicate an example of a specific teaching and are not to be taken as limiting.

Regarding claims 7-10, Song et al. disclose all the limitations of the claimed invention as detailed above including the mold cap 26 to form the

Art Unit: 2827

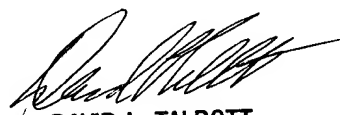
package, as detailed above, but Song et al. do not teach the mold cap 26 comprising plastic. However, plastic is a well known material in semiconductor art for forming a device package as taught by Glenn (Col. 1, lines 11-12, 19-23, 25-26, and 57+). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use plastic to form the plastic mold cap for Song et al.'s device package since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luan Thai whose telephone number is (703) 308-1211. The examiner can normally be reached on 7:00 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on (703) 305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Luan Thai  
April 16, 2002



DAVID L. TALBOTT  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800